

## Screening For Resistance to Peanut Smut in Argentina

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Peanut smut, caused by *Thecaphora frezzii*, is found in 100% of Argentinian peanut growing regions. Disease severity varies with location but yield reductions as high as 51% have been reported. Research on the causal agent and the disease is in its infancy as little is known about *T. frezzii* biology, systematics, host-plant relations or epidemiology. The spread of this disease has caused concern within the peanut research and production communities not only in Argentina, but throughout other peanut producing countries including the U.S. Although peanut smut is not currently found in the U.S., immediate proactive measures must be taken so that the industry will not be threatened should this disease reach the U.S. Research on the disease and preventive breeding efforts to develop resistant cultivars and management strategies are imperative to avoid effects on the U.S. peanut industry should a peanut smut outbreak occur. The first step in preventative breeding for resistance to peanut smut is to identify key sources of resistance. Therefore, the objective of this study was to identify sources of resistance to *T. frezzii* that can be used to incorporate smut resistance into cultivars optimized for key areas of U.S. peanut production. In 2017 and 2018, peanut genotypes, including accessions from the USDA Peanut Germplasm collection and U.S. cultivars, were planted in test plots where peanut smut is prevalent near General Deheza (Córdoba Province), Argentina. Plots were arranged in an augmented grid design with three replicates and maintained throughout the growing season. Upon harvest, pods were dried and manually phenotyped for the presence or absence of *T. frezzii* infection. For screening purposes, entries were retained for future testing if they scored 10% or less disease incidence. Of the entries tested in the 2017-2018 and 2018-2019 seasons, potential new sources of peanut smut resistance were identified. Entries identified as potential sources of peanut smut resistance will be tested again in the 2019-2020 season. Proven sources will be used to incorporate this resistance into peanut cultivars suitable for production in the U.S and for RIL population development to identify molecular markers for peanut smut resistance.